

SINCLAIR NEWS

On the Timex-Sinclair line
of personal computers

HAPPY
EASTER !

MAR/APR 86
VOL IV: No. 3

SINCUS NEWS VOL 4; NO 3
POST OFFICE BOX 36, JOHNSON CITY, NEW YORK 13790

Meetings:

- Feb 12-7pm-Vestal Library, 17 present
- Sold local rights to reproduce CLONE to RMS Enterprises, Oregon City, OR.
- Election Committee to be formed at March meeting.
- Donation of \$25 to Vestal Library voted on and passed-see letter page 3.
- Computer fairs in April at Trenton and in May at Cincinnati discussed.

- Mar 12-7pm-Vestal Library, 10 present
- Gary Ennis announced Election Chairman for upcoming elections will be John Colonna.
- April meet will see demos of the EMC disc, and possibly the QL and a speech system.
- Copyright protection discussed. Lenslock was brought up. No one has seen it, but several reports seem to indicate that the software owner gets a special lens with his tape and documentation. With this lens one can read a security number which is generated on the screen. This number must be entered to make the program run.
- John Colonna gave a description of his efforts to get into modems and provided all with a list of local BBS, also included here.

BBS name	phone
ADD-A-DBBS	748-3259
COBBS	722-0518 COMMODORE
CYBERUS	729-5506 ATARI
GAMMA WORLD	723-4617 APPLE
QFA-IBM	754-3420
PC-PLUS	785-6876
PC-TIE I IBM	755-8195
SUNY BBS	777-3258

THE BIT BUCKET	797-4092
TCCS-FIDONET	785-2118 IBM
TOWN CRIER	748-8439 TRS80
TUBBS	775-3045 TANDY
OUTER LIMITS	722-5727
PISCE 4	692-3176
THIEVES GUILD	729-2141
THE STOCKADE	722-9058
GUILD	862-3530
HSBBS	692-4857
TEL-COR	1-800-231-3158
DDIE'S PENTHOUSE	1-800-828-1088

AT THE FED MEET WES GAVE A LITTLE TALK ON HOW TO DIGITALIZE SOUND FROM THE TAPE RECORDER. USING THE FOLLOWING CODE ONE CAN ADD SPECIAL SOUND EFFECTS OR WORDS TO A PROGRAM-OF COURSE WITH A BIT OF ADDING TO WHAT IS HERE. IF YOU WANT TO LEARN MC HERE'S A START. USE IT, TRY MAKING IT STORE THE SOUND FOR PLAYBACK.

```
50 CLEAR 59999
60 FOR J= 60000 TO 60009
70 READ K: POKE J,K
80 NEXT J
90 RANDOMIZE USR 60000
100 DATA 219, 254, 31, 31, 230, 16, 211, 254, 24,
246
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LOOKS LIKE THIS:

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IN A, (FE)
RR A
RR A
AND 10 h
OUT (FE) A
JR 0 F6
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News, New, Views and Reviews

THE RANTOP, Greater Cleveland Sinclair Users Group, 6514 Bradley Ave.(DOWN) Parma, Ohio sent us 5 back issues of their newsletter and we welcome another group into an exchange of ideas.

New Member update: Hi and welcome to Dan Pinto, Parksville, B.C. and Renato Zannese, Downsview, Ont. Canada

ZX Computing mag(England) is going monthly instead of bi-monthly. All those getting this mag, the next will be at Carl Morris at the Mall, and he call you when in.

TS Horizons, a monthly mag, is now publishing every six weeks.

RAMEX is changing name to Foundations Systems, 17260 26 Mile Road, Washington, MI 48094. Also dropping 2068 support and Millennia disc drives. Will continue to carry the QL.

Time Designs, 29722 Hult Road, Colton OR 97017, \$15 for 6 issues. If you want a complimentary issue, drop a note to Tim Woods. If you haven't seen this mag lately, you might be in for a pleasant surprise.

Some bits of news from Time Designs...for QL lovers, a free copy of a LISTING for a QL graphics toolkit, send a SASE to R. Lussier, 7937 Elvell St., Burnaby, B.C. Canada V5E 1K3,...look out for Small Digital Systems, 2009 Chatsworth Blvd. Ste.4, San Diego, CA 92107, ad on Computer Hot Line for TS utility programs has apparently vanished into thin air..."

THANKS TO THE FOLLOWING FOR RENEWALS: CURTIS AND MEL MURRAY FOR DUES THAT TAKE THEM INTO 1987, BINGHANTON, NY; MARK WHITNEY, TIOGA, PA; GEN BARUT, NYC, NY; AND HELLO AND THANKS TO NEW MEMBER, BEN MCLUCKIE, EUGENE, OR.

APOLOGIES FOR LAST ISSUE OF THE NEWSLETTER-I HAVE HAD TO SEARCH HI AND LO FOR ANOTHER COPY SOURCE THAT WOULDN'T BANKRUPT US. I WASN'T PLEASED AT ALL WITH THE RESULTS, BUT THE MONEY WAS SPENT, SO I DECIDED TO GO WITH WHAT WE HAD. BETWEEN THE WEATHER AND THE BOUTS WITH THE FLU, AND I COULD NOT AFFORD TO DO IT ALL OVER AGAIN, I FELT ANYTHING WAS BETTER THAN NOTHING. HOPEFULLY IT WONT HAPPEN AGAIN, BUT UNLESS SOMEONE ELSE WANTS TO DO THE WRITING, TYPING, PASTE UP, COPYING, STAPLING, ADDRESSING, STAMPING AND MAILING I CANNOT SAY IT WONT. REGARDING THE ONLY COMPLAINT RECEIVED BY YOURS TRULY, SEE THE LETTER NEXT PAGE, I APOLOGIZE FOR THE POOR COPY, BUT AS FOR THE 64 CHARACTER COLUMNS, WE HAVE BEEN DOING THIS FOR OVER A YEAR WITH NO PRIOR COMPLAINT FROM A PAYING SUBSCRIBER OR A SWAPPING USER GROUP. 64 CHARACTER COLUMNS IN SIMILIAR TYPE STYLE IS USED BY MANY OTHER NEWSLETTERS WITH APPARENTLY NO COMPLAINTS....AGAIN SORRY ABOUT THE POOR QUALITY OF COPYING, Paul Hill, Editor, SINCUS NEWS

UPDATE: NOTE FROM JACK DOHANY, RE: THE NEW ENHANCED MSCRIPT VERSION 5 IS NOT YET DONE, AS REPORTED IN PRIOR NEWSLETTER. JACK WENT BACK TO THE DRAWING BOARD WITH NEW IDEAS MAYBE BY END OF FEBRUARY IT WILL BE DONE. IF INTERESTED IN LATEST VERSION, WRITE JACK, AND SEND A SASE, AND PROOF OF OWNERSHIP OF AN EARLIER VERSION OF MSCRIPT. WRITE TO JACK, AT 325 O'CONNOR ST. MENLO PARK, CA. 94025 CALL(415)321-7684

EB9-E. ARTHUR BROWN'S 9TH CATALOG OF TINEX-SINCLAIR PRODUCTS IS OUT AND IF YOU ARE ON HIS MAILING LIST, YOU SHOULD HAVE IT BY NOW. WRITE E. A. BROWN, 3404 PAMNEE DR. ALEXANDRIA, MN 56308, CALL (612) 762-8847, 763-6393- ITEMS TO LOOK FOR- BATTERY POWERED MEMORY BOARDS-SALE ON 2050 MODEMS-LAST OF THE ANCHOR MODEMS!! BOOKS-1000 PROGRAMS-SUPER HOT Z-THE QL-SINCLAIR POCKET TV -PRINTERS -SOFTWARE- AND BRAND NEW TS2068s!

KNIGHTED COMPUTERS-707 HIGHLAND ST. FULTON, NY 13069-OMNICALC 2 FOR \$19.50-GOT TO BE ONE OF THE BEST SPREADSHEETS AROUND FOR THE MONEY AND THE 2068-WRITE FOR THEIR MAILER-AND NOW THEY TAKE PLASTIC!!CALL EM AT 315-593-8219 AND FIND OUT WHAT THEY GOT !!!

MIDWEST TINEX/SINCLAIR COMPUTERFEST '86, MAY 3RD & 4TH 9AM TO 5PM, AT THE RAMADA INN, SHARONVILLE, OHIO. AT THE CORNER OF I-71 AND I-275 CONTACT T/S COMPUTERFEST, 3832 WATTERSON AVE., CINCINNATI, OHIO FOR ANY DETAILS.

SYNAPSE-1525 N. Ashwicken Ct., State College, PA 16801-\$12/year Bob Heil, editor, is putting out a "book" for a newsletter, full of info and help for the 1000 and the 2068 user, and the QL owner as well. For a "pro" looking newsletter, subscribe to this one.

LIST-PO BOX 438, Centerport, NY 11721-0438, \$15/yr-Bob Gilder does part 3 of his explanation of disc drive controller and interfacing. If keyboards are your bag, Cedric R. Bastiaans starts off part 1 of Keyboard Mania, this and more in the Feb 86 issue. Heavy duty data in this newsletter but you need patience to read the tiny type.

TSUG-Mile High Chapter-914 S. Victor Way, Aurora, CO 80012 Frank Holland wants to start a central clearing house on the OS-64 boards (for the advancement of use and problems and solutions) and maybe grow from a column in the newsletter to a newsletter in itself. Write to Frank Holland, 1423 S. Pearl St., Denver CO 80210-send a SASE for a reply!

PUZZLE TIME-DURING LUNCH HOUR AN ASSISTANT BOOK STORE MANAGER SOLD THREE BOOKS FOR \$10 EACH TO THREE CUSTOMERS. UPON RETURNING FROM LUNCH, THE MANAGER DISCOVERED THAT THE BOOKS SHOULD NOT HAVE BEEN SOLD FOR THAT MUCH, AND GAVE THE ASSISTANT \$5 AND TOLD HIM TO RETURN THE OVERAGE TO THE CUSTOMERS. BESIDES BEING A LITTLE LAZY, THE ASSISTANT WAS ALSO A LITTLE DISHONEST, AND DECIDED TO KEEP \$2, AND GIVE EACH CUSTOMER ONLY \$1 BACK. HE FOUND ALL THREE CUSTOMERS BEFORE THEY LEFT THE SHOPPING MALL. NOW EACH GOT \$1, AND THE ASSISTANT KEEP \$2. IN EFFECT, THE THREE NOW PAID \$9 EACH AND THAT TOTALS \$27 PLUS THE KEPT \$2 EQUALS \$29. WHAT HAPPENED TO THE OTHER \$1?

LENKE Software Development, 2144 White Oak, Wichita KS 67207, has several programs for the 2068-NEW-PIXEL SKETCH & Graphics Editor-\$19.95: 64 column ext color and hi res video modes- 3 character sets-Modern, Italic and Bold, and combine anyone of the three.It is compatiabie with Aerco and Tasman driver codes and works in all 3 video modes. Price includes postage.

Sinclair ZX Expansion Unit-low price-mass storage-rapid access these are the beennies of this system according to Steve Ishii, in an article in TimeLinez, Feb/Mar 86, price is under \$150, speed is 12-16 secs to load lasword, and 80K is average storage capacity of the microdrives. The op system is housed in the Interface 1 unit, and if you have a TS2068, you need a tvistor board to connect the IF up. The IF also has an RS232 port and a network port(to connect several computers together) With the RS232 and a serial printer, no need for print driver software, as LPRINT and LLIST function from the keyboard. COPY does need a screen driver routine. Currently software comes with the package, Tasword 2, Masterfile, and Ant Attack and Games Designer. Steve got his from EMC, 15 Kilburn Ct., Newport RI, 02840: TimeLinez, PO Box 1312, Pacifica, CA 94044-\$15 annual.

SUNSET ELECTRONICS, 2254 TARAVAL STREET, SAN FRANCISCO, CA 94116, 416-665-8330(INFO) 416-665-6161(ORDERS) HAS A BIG STOCK OF 1000 AND 2068 SOFTWARE AND HARDWARE, CALL OR WRITE FOR LATEST CATALOG. ZX81 KITS STILL AVAILABLE AS OF LAST SEPT.

Stan Livingston reports on how to buy cheap from England. He recently purchased Machine Code for the Spectrum for the Absolute Beginner from W. Heffer & Sons LTD, 20 Trinity Street, Cambridge, England CB2 3NG, and he paid in US dollars to Heffer's account with American Express Int'l Bank Corp., Commercial Bank Division, NY Agency, PO Box 740, NY, NY 10008. This way he saves money order fees and conversion rates are taken care of.

A note from E. A. Brown and Jack Dohany helped me understand and use the printer codes in MScript-the set up lines look like this)#0=27,#1=52, then each is embedded seperately in the text like this a0a1, the a standing for the function G symbol and just use the manual that comes with the printer and enter the codes for what you want it to do. Thanks to Eban and Jack!

check the mailing label for the date under your address-there should be a year/month, eg 86/03, if yours is like that your dues are due, we might be able to carry some for an extra issue but only if there are extra copies, so stay with us, and renew TODAY-thanks, Paul Hill, Ed.

THANKS _____

TO all who helped me with this issue—Wes for the 3 articles and art work, to Ian, Stan, Art and John for their talents and efforts. A special thanks to the magazines and newsletters that support our computer, with out the efforts of so few can so many enjoy the computer and peripherals that these organizations enlighten us about. If you have any program or product for the computer, write a review, send it to your newsletter's editor. We all will appreciate it.---P.A.H.

FEBRUARY 8, 1986

ROD BOWEN, CCAT/S
1419 1/2 7TH STREET
OREGON CITY, OR 97845

SINCUS
P. O. BOX 36
JOHNSON CITY, NY 13798

TO THE EDITOR:

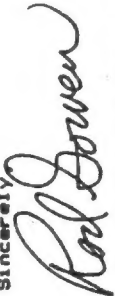
I am writing to you as a long time reader of your newsletter. I have been an avid reader, dropping whatever I was doing when SINCUS NEWS came in until I had read it front to back. As Editor of our local user group's newsletter, THE PLOTTER, for almost 3 years, I am always looking for good material and articles. I have used several of Paul Hill's cartoons and some other items from time to time in our NL. I had hoped to continue to use your NL as a source of info and material for a long time (or as long as you continued to publish it).

That may change rather quickly if the issue I just received is any indication of things to come. (The Jan/Feb 1986 issue). I could not and cannot believe my eyes! I have had eyesight and have had some problems with a few newsletters in the past. I am going to give my own personal award for THE LEAST LEGIBLE, LEAST READABLE NEWSLETTER that I have ever seen, to this issue of SINCUS NEWS. If the new format is going to stay, then, as far as I am concerned, it will no longer be read by me nor will it be a source for our group to look toward for information. I am not speaking as Editor of THE PLOTTER, as I stepped down from that post last month. I am speaking for the new Editor and we are both going to miss your informative publication. Not only is the 64 character column too small, but the issue I received must have been copied on a copier that was on its last legs.

I wish to say that I have enjoyed your newsletter in the past and sincerely hope that I will be able to do so in the future.

Thanks for reading this.

Sincerely



Rod Bowen, Treasurer/Librarian CCAT/S
former Editor, THE PLOTTER
OWNER: RMG ENTERPRISES

cc/rig

See apology on page two-ed.



To make a tape backup of that \$25 original program, or easily duplicate copies of that program you're going to market, get CLONE. Can LOAD all BASIC & MC in one step and then SAVE it all in one more step. On TS2068 programs, this is all you need. For the more sophisticated copy protection in many Spectrum programs, it can use 2 tape recorders, and the TS2068 (as a noise filter and pulse stretcher) to also make an acceptable backup copy. Runs under both TS2068 and Spectrum ROMs. Easily transferred to the Sinclair Microdrives. (though still for making tape copies), so it can probably be transferred to other mass storage systems, as well. We are getting the copying and distribution rights to other groups. The master copy, supplied to each group will include that group's name, address and logo on the cover screen of the program. Dues paying members of SINCUS can obtain a copy for \$6, shipping included, as well as telephone support, for any questions or problems you may have.



CLONECLONECLONE
CLONECLONE
ORDER CLONE TODAY!
send your check or MO to
sincus
POB 36
Johnson City, NY
13798
CLONECLONECLONE



VESTAL PUBLIC LIBRARY

February 18, 1986

Paul Hill
Sincus Secretary
P. O. Box 36
Johnson City, N.Y. 13790

Dear Mr. Hill:

On behalf of the Vestal Public Library and its patrons, I thank you for your generous gift of \$25.00. I hope your organization will continue to use the services of the Vestal Public Library.

Yours truly,
James L. Holley
James L. Holley
Director

JLH/mrk

Notes from "SINCBITS"

by Ian Robertson, Compuserve 72167,3401

Fido Net 148/Mode 608

Printed in Jan/Feb 1986, "SINC-LINK", Newsletter of the Toronto TSUG, Canada. PO BOX 7274, Stn A; Toronto, Ont. M5W 1X9

...there is another 2068/Spectran compatible Disc Drive Interface (DDI) on the market, it is the John Olinger Disc Drive Interface. It is available in four configurations, from John Olinger Company, 11601 Whidbey Drive, Cumberland, IN 46229; a) the two bare boards \$44.00, b) as a kit with all parts \$98.00, c) assembled and tested (without NMI) for \$120.00, and lastly, d) assembled and tested (with NMI) for \$130.00. NMI stands for "Non Maskable Interrupt", which simply means that ram contents can be dumped to disk at the touch of a button. All prices are in US funds and include the JLO SAFE DOS on a 8K enpron plus postage. In order to operate this DDI you must also buy the Olinger expansion board. I now have my bare boards assembled and am in the process of testing. On power up - the JLO SAFE DOS checks to see which ROM is being used - I can report that this aspect really works. One last word "this DOS is FAST", more in next issue....There is definately a mouse in my house! It is a Radio Shack CoCo mouse connected to the Zebra Graphic Pad Interface (with slight modification). AND IT WORKS!! To be able to use Tech Draw without all that "screen splatter" is quite a treat.

SPECTRUM: My big news item for the Spectran is that I now have the Technology Research "Beta" DDI up and running on my "plus" complete with IF1 and two microdrives. WHAT A SYSTEM!! It comes with a 5.25" utility disc, which I can use on the quad drive or can be transferred to a 3" disk. Very Flexible! It is possible to switch from DOS to Sinclair Basic by software commands. This means that discs, microdrives and cassette can be used at anytime without a problem. Using the "magic button" on the DDI I can dump the RAM contents to disc at any time. This means that all games can be put on disc and can come up running at the location on the screen when the button was pressed. ...there has been considerable press concerning "Lenslock", a software protection device which looks like a small folding magnifying glass. The observation have been mixed - the software people like it and it appears that the users are not quite so sure. Think about it, how would you like to look at a "very bright" screen through a magnifying lens to load a stubborn program. Apparently FIREBIRD used it on their latest program "ELITE" and are quoted as saying that they are considering not using it in the future, due to very bad reviews about their instructions for using lenslok....you must try "Tonahawk" by Digital Intergration. It seems to be the best flight simulator available, even if it is a helicopter(but what a helicopter!!)

751000/ZX01: Anyone interested in joining a COMPUSA USER'S GROUP should write to CUSS, PO BOX 2186, Inglewood, CA 90305. Or you can reach Ed Grey at FIDO NET 102 Mode 106 or Compuserve 75236,3233 or Tony Gomez at Fido NET 102 Mode 602.

Ian strongly feels that the Olinger Disc system could well become the standard for all the rest of the DDIs for the TS2068, because:

- 1) The Ray Kingsley DOS which is reported to be almost ready and should support all proper business type DOS commands similiar to TDOS and SPDOS.
- 2) Does not use precious RAM.
- 3) FULLY compatible with both 2068 and Spectran ROM's.
- 4) NMI function for games enthusiasts
- 5) future 64K RAM bank switching
- 6) compatible with Zebra Graphic Interface
- 7) Jeff Street of LIST is revising 2 bytes of his OS-64 to make it compatible with the JLO DDI
- 8) All ports are decoded on firmware/bank/logic/memory board
- 9) So far is compatible with cartridge dock
- 10) The sheer joy of assembling a kit that actually works.

Tasman has just released "TASWORD 3" for the Spectran. Word on that soon. DCP's "Word Manager"- so so, not user friendly!

Ian has CLONE and writes "...A very special Thanks for the copy of "CLONE", it is truly a well written and useful addition to any serious programmers library. Nes is to be congratulated."

Ed.Notes: Ian's letters while full of up to the minute data on what's new in our computer line, is very valuable to me and all who read his very interesting reviews of products that he buys and tries. He is a one man Consumer Guide for 2068 Users, thanks Ian from all of us who have avoided the dogs and enjoyed the cream without the pain.

Haskel Electronics, 247 Queen St. West Toronto, Ont. Canada, M5V 1Z4 (416) 596-1663 introduces a new 2068 printer interface. Works with all Centronic parallel IF standards, includes ALL connecting cables, uses the LPRINT and LLIST commands, Allows for full page high resolution graphic screen copys. Allows hi res COLOR screen copy using a grey scale system similiar to the Macintosh system. Compatible with all software designed for the Aerco IF, eg MSCRIPIT. Compatible with all software designed for the tasman IF. PGKES are included to modify the software. Compatible with Omnicalc II, VU-Calc, VU-File. Available in two types:

Cartridge board \$49.99 US Rear Edge Connector \$45.99 US
plus \$4.00 for shipping

A Phrase Book of Computerese

-Mes Brzozowski, SINUS

You've probably seen dozens of glossaries of computer terms. Newspaper articles, magazines and even some computer manuals contain lists that will let you look up the meaning of the term byte, RAM, or floppy disk. But you can't learn French by reading a French dictionary, and you can't understand computerese by scanning a glossary. Although a true understanding of the language requires practice, we really could use a phrase book. You know, the kind tourists take with them when they travel. The little book they open at that restaurant in China, just to make sure that they don't accidentally order a stir fried tractor.

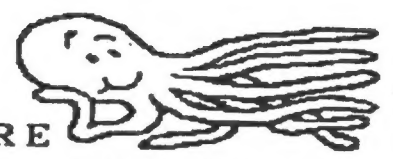
In any case, here's a short list of useful computer phrases, and what they really mean:

- It'll be available in a couple of months -- If enough people act interested we may start designing one.
- It prints near-letter quality -- The dot matrix is larger than 5 x 5
- You won't be constantly referring to the manual. -- We didn't provide much documentation.
- It'll be available in a couple of months -- The competition has announced one, and we don't want you to buy theirs.
- It's portable -- We put a handle on it.
- New Low price -- We got this deal on a load of reject parts, that usually work OK.
- It'll be available in a couple of months -- We're trying to hire a designer who knows what the heck they are.
- Ours is easier to learn -- Ours doesn't do as much
- We've improved it -- We think it's finally debugged.
- It'll be available in a couple of months -- The prototype still doesn't work, for some reason
- It'll upgrade your system -- Now you won't crash as often
- It's fully compatible -- We heard that someone got it working, once
- It'll be available in a couple of months -- We forget to write software for it.
- The owner installs it -- You do the work and save us the labor costs.
- It's the best one around -- You expect we'd say it isn't?

- It'll be available in a couple of months -- We've got to redesign it. We've fiddling with it so long that they've stopped making some of the parts
- It's widely supported by third parties and user groups -- If you have any questions we don't want to hear them.
- The FCC hasn't approved it yet -- We can't submit it to them until it works.
- It'll be available in a couple of months -- There's a sucker born every minute.
- It's compatible with earlier models -- We took the old guts and put them in a new box.
- It's new and innovative -- It's not compatible with anything.
- It won't be making it available: There's not enough of a market. -- The only guy who understood the thing, left us to go to work for a more organized outfit.

As you can see, there's more to computerese, than just word meanings. Note that the meaning of some phrases changes depending on how many times they're repeated. Also we can be sure that those who announce ship dates for computer products fully agree with Einstein that time is relative. Ah well, such are the complexities of language.

WE'RE STILL WAITING!!!!!!



Last time, I posed a question to all of you readers, in my "WHAT DO YOU THINK ABOUT MULTIPLE PART ARTICLES" piece. The response, so far, has not been overwhelming. For those just tuning in, my COMPUTUS INTERRUPTUS series will be ending soon. I asked if you were interested in more technical articles, or if you would prefer more general interest items. I suggested several technical topics and wrote a sample "general interest" article. While I've gotten a reasonable bit of mail since then, NO ONE has given a bit of response through the mail. The closest we got was someone who wrote a letter to the editor, complaining about the last newsletter's contents, BUT EVEN THIS GUY WOULDN'T BOTHER TO SELECT A POSSIBILITY, OR SUGGEST ONE OF HIS OWN. C'mon, gang, if you want to be taken seriously, you've got to tell us what you want.

Local response has been far better. For the most part, our local members seem to want general interest material. As such, I'm beginning to work out more non-technical articles. I'll be glad to do the technical stuff, too, but I need some assurance that there are enough people reading them to make them worth the bother. They're really a lot more work to do than you might imagine.

As support for the Timex/Sinclair machines dwindles, and more users drop out, we'll all have to tailor our work to the widest possible audience, so as to reach those who remain. We really do need your opinions (and perhaps an occasional article) if we are to continue to survive in the coming hard times. Write and tell us what we should be, if we are to continue to serve you.

Please.

Thank For your help,
WES

On Fingers and the Timex-Sinclair Video Display

by Wes Brzozowski, SINCUS

Suppose you were designing an animal and had chosen to give it two hands. Now to choose the number of fingers. You would do well to at least consider the number ten. This is not to say that 8 or 12 fingers wouldn't work, or even (if you were in an especially lousy mood) 9 or 11. Still, the ten finger design has been extensively field tested, and has been very successful. In fact, even if we were to consider Nature's Nonsensical Nonconformists, like the koala, we might say that ten is the number of choice.

Let's extend this to human beings. We see that with ten fingers we have been able to build tools, work with fire, and build statues with clocks in their bellies; all signs of great success, not to mention intelligence. Yes, when it comes to fingers, ten is just a dandy number.

If you want to build a computer, however, it seems better to give it just two fingers. After all, it will only use its fingers to count on. Computers work with voltage levels, and the use of two levels has been very successful.

Oh, off; one, zero; high, low -- like ten fingers on a person, two fingers on a computer is a great choice.

Oh, you could give the computer more fingers, say, four voltage levels, instead of two. You would likely become discouraged by noise problems and the cost of the circuits, but it could be done. All in all, computers seem happiest with two voltage levels, being driven from one extreme to the other; however schitzophrenic this might seem to us.

Having only two fingers, computers do insist on counting in base two. People, on the other hand, (get it?) have ten fingers, and being somewhat stubborn, want to count in base ten. If we could ease this crisis by finding some middle ground, it would help. It turns out the number 1024 (ten twos multiplied together) is very close to 1000 (three tens multiplied together). The math wizards out there realize that this means there's a nice round number base ten that's similar to a nice round base two number.

And nice round numbers are nice and easy to work with.

If we express base two numbers in multiples of 1024, we can get a fairly good idea of how many thousands they are. Because of this, the "K" was born. To a programmer, 1K is 1024. A TS-1000 comes with 2K of memory, or 2048 bytes. (Eventually, all good approximations break down. Figure out how many bits there are in a 64K memory chip.)

A possible point of confusion can occur because non-programmers often use the "K" to mean exactly 1000. Thus European road signs use 1 Km to mean 1000 meters (distance). Electronic diagrams use Kohms to mean thousands of ohms (resistance). Government officials use just plain K to mean thousands of dollars (their pocket change).

From here on, 1K will mean 1024.

We can find an interesting use for the "K" when we look at the Timex-Sinclair video display. The 32 x 24 character display can hold a total of 768 characters. As large as this may seem, it still doesn't show how much information can really be displayed.

A high resolution display (built in to the TS2068, and available as an add-on for the other TS machines) display 8 x 8, or 64 dots for each character. Each dot is equivalent to one bit, so the screen contains, 64 x 768 or 49,152 bits of information. How many characters is this? All TS machines use 8 bits per character, so this number becomes 6144.

But how many of us work all day with characters? We might get a clearer picture if we converted this number to words, but different words have different lengths. What's a good average? A good rule of thumb is used by many publications who pay by the word, and so are vitally interested in such things. The rule is that every six characters (numbers, letters, spaces, or punctuation) makes one word. Using this, we can say that one TS display can contain as much information as 6144/6 or 1024 words. Exactly one "K".

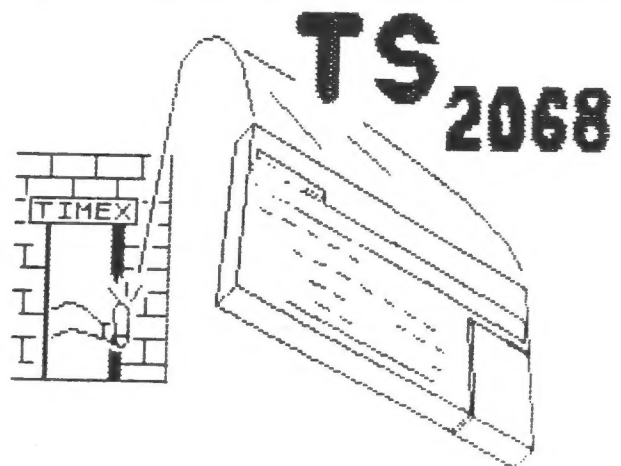
Obviously, the person who said "A picture is worth a 1000 words" was a bit low. We just shown that a picture is worth 1024 words. It's always possible that the statement was first made by a programmer as "A picture is worth 1K words." A non-programmer, overhearing this, could, understandably introduce a bit of confusion. In any case, this should set the record straight.

A happy April Fool's Day to you all.

Took A Booting...
But Kept On Computing!

6

SINCUS NEWS MAR/APR 1986



Computus Interruptus-Part 6

By Wes Brzozowski, SINCUS

Hello again! It's time to take another look at the wonderful world of interrupts. This installment will be of most use to those who've built the NMI Switch and the Universal LROS/AROS Development Board, shown in part 5 of this series. If you haven't done so yet, warm up that soldering iron and start wiring!

As mentioned last time, this hardware is not compatible with other add-ons that try to use the same memory space. This includes Doug Devey's excellent EMU series. This also includes my own "Extra Simple Spectrum Emulator", (Sincus News, Feb 1985) which isn't a true LROS, but uses the LROS memory area. Actually, we shouldn't mind temporarily losing either of these, as we'll see how to use the LROS/AROS Board as its own Spectrum Emulator in this installment.

Another incompatible item that's been brought to my attention is the Aerco disk interface, which uses the entire cartridge bank of memory. Cem Barut, with whom I've corresponded in the past, has used the Aerco memory to implement a "TS2068 Emulator" similar to the one we'll discuss in a moment, so the Aerco might actually be able to replace the Universal LROS/AROS Development Board, if the memory loading programs shown here are rewritten to accommodate it. Unfortunately, Cem also tells me that the Aerco Interface uses the NMI signal. This means that my NMI switch may not work with it, or if it does, repeated use could eventually damage the Aerco.

Since I don't have one of these units available to me I can't recommend your using the NMI switches with it. If any of you readers can shed some light on this matter, I'll pass the information on and give you the credit. Note however that you'll have to say more than "I tried the NMI switch with my Aerco, and it works." You'll need to provide some information that shows that using the switch is also safe to use in the long run.

Next, before we get into the meat of things, I should point out that there are some typographical errors in the last installment. This is not unusual, since I tend to submit my articles in a handwritten "chicken scratch" which Paul has to interpret before he can type anything in. He also has to type pretty fast, because he usually gets my articles about a week AFTER the deadline, and then only after a lot of pleading and threats. So, the responsibility for errors is mine. If you notice an occasional spot where my articles lapse into incoherency (What do you mean, all the time? Twenty lashes with a tangled cassette tape for you!) that's the reason. My handwriting, which rarely resembles English, will occasionally lapse from something resembling Greek into something more like Chinese. Now, on to the typos.

First of all, the fourth paragraph, first column should say that the "TS2068 code was NOT written to be run in the cartridge bank." (We'll do it anyway, in a moment.) At the end of the third paragraph, second column, it should read, "a reset switch which can be disabled by software." In the fourth paragraph, second column, it should say that my board was "designed to accommodate RAM, EPROM or EEPROM chips." There's no ROM or reason for wanting anything else. (Ouch, sorry.)

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Now, we'll be using the LROS/AROS Board with the READ ENABLE and WRITE ENABLE switches closed. Also, the LROS switch must be closed, and the ARDS switch must be open. Those who've traced through the circuit will know that when the board is setup like this, it's read from starting at address 0000H in the cartridge bank, but written to starting at C000H in the same bank. This allows us to do some fancy tricks from BASIC, which we'll see in a moment.

Now, it's time to fire up your TS2068. (If real fire is observed, it's time for a new computer.) Type in and RUN Listing 1. This must be done with the original Timex ROMs in control, so if you've got a Spectrum ROM installed in board, just hold on until we talk about Listing 4, later.

Alternately, you can RUN the program on a friend's computer.

When the program runs, it will SAVE to tape a "TS2068 Emulator" program. (Why in the world we'd want such a thing will be explained later.) The program will take a fairly long time to run before the SAVE message appears, but you only have to do this once to produce the new program, so this is not a real problem.

Once the new program is LOADED in, (and the LROS/AROS Board installed) it will insert a copy of the TS2068 code into the LROS/AROS Board, but it won't run it, yet. The TS2068 Emulator program includes a complete copy of the TS2068 home ROM code.

While this may seem a waste of time when reloading, since there's already a copy of the ROM code inside the TS2068, this also makes it possible for this program to be used by those who've installed a Spectrum ROM inside their computer. (Provided they have access to a computer that allows them to produce the TS2068 Emulator program, in the first place.) So this program will tolerate a much wider variety of computer set ups than will the simpler, faster way of just copying the TS2068 ROM directly into the LROS/AROS board.

For those who want to produce their own emulator programs, you should note that the code isn't LOADED right into the LROS/AROS Board memory. It turns out that the TS2068 bank switching hardware gets in your way if you try. Instead, the code is first LOADED into RAM in the home bank, and then moved to the LROS/AROS Board with a short machine code program.

In order to switch to the emulator, you need only type OUT 244, 3, but don't do this, yet. We want to make CHANGES to our TS2068 emulator. (No point in emulating the TS2068 exactly; our emulator will allow us to do things that the old ROM can't.) This article contains several BASIC programs that make changes to the emulator code. These programs should run when the real ROM is in control. It's possible to rewrite them for when the emulator is running the show, but for consistency in this article, we will ALWAYS make our patches when the real (home) ROM is in control, as running them will always return control to the home ROM.

All right! Now that you've been punned with a plethora of preposterously polysyllabic paragraphs, it's finally time to start talking about interrupts. We'll assume that you've installed your LROS/AROS Board and NMI switch, set the switches properly, turned on your TS2068 and LOADED and RUN the TS2068 Emulator program. We'll also assume you've done NOTHING else.

Now, type in and run Listing 2. This is just about the simplest possible program you can use to change code in the emulator, and this changes a single byte. Let's see what we're changing, and why, before we try to understand what Listing 2 does.

Listing 3 is a copy of the NMI routine in both the Timex and Sinclair ROMs, and it is the program that's run when you push the NMI switch. If you've tried pushing this switch, you'll have found that this resets the machine. This is due to a bug in the NMI routine. The machine looks at the contents of locations 5C80/1 Hex, and if these contents are zero, the machine JUMPS to the address contained in the locations 5C80/1 Hex. In other words, it jumps to location zero, causing a machine reset. However, if these locations do NOT contain zero, the machine goes right back to what it was doing, and no reset occurs.

Now, type OUT 244,3. Although nothing important seems to have happened, the TS2068 emulator is now in control. Press the NMI switch. If you ran Listing 2 earlier, you'll find that pressing the switch no longer resets the machine. We've corrected the bug. Type NEW or RANDOMIZE USR 0, or OUT 244,0. Any of these will switch you back to the old ROM. Now, the NMI switch causes the machine to reset again.

What have we done? Look at Listing 2. Line 10 makes sure that nothing important is going on in the upper 16K of the computer. Line 20 opens the upper 16K of memory to the cartridge bank. Now, when we poke something into the top 16K of memory, it will appear in the emulator, and the addresses will always be separated exactly by 49152. So, in line 30, we POKE a number into location (49152+109), and expect that it will go into location 109. This is location 006D in listing 3, and it changes the JR NZ, #0070 into JR Z, #0070. Line 40 gives the upper 16K back to the normal memory. It also will switch out the TS2068 emulator, if it's active, and you won't get the results we've been discussing. This is why all of the listings here should be run when the normal ROM is in control.

After using Listing 2 and switching in the TS2068 emulator, you can cause the computer to run your own custom machine code program at the push of an NMI switch. Just insert it into some unused portion of memory and put its address into locations 5C80/1 Hex. However, if you then want the computer to resume where it left off, you'll have to follow a couple of additional rules. First, note that the NMI routine saved the values of AF and HL. For this reason, the last 3 lines of your routine must be POP HL, POP AF, RETN, and they must be done in that order!

Second, if your program uses any other registers, you must save their original values and restore them before you return.

Third, you must not use, EI or DI. The NMI will automatically disable the maskable interrupt, and RETN will restore its original status, but using EI or DI can upset this. In a moment, we'll run a new program that breaks some of these rules, and we'll see what happens.

Now, if you have a Spectrum ROM installed in your computer, or if you have any variety of Spectrum emulator, type in and RUN Listing 4. This will produce a program similar to the TS2068 emulator, but it inserts the Spectrum ROM code into

the LROS/AROS Board. Switching to the Spectrum emulator is a little more complicated. Type in:

```
RANDOMIZE USR 0 (resets the computer)
OUT 244,3 (Switches banks & crashes computer)
RANDOMIZE USR 0 (resets properly after the crash)
```

Some users may be tempted to leave out the RANDOMIZE USR 0s, but they're important; especially the second one. The OUT command crashes the computer and it's very unwise to go on using it without first resetting it. Those who remember my INTERFACE ZERO schematic, (SINCUS NEWS, March 1985) will notice a reset was included. This is the perfect alternative to typing RANDOMIZE USR 0, all the time.

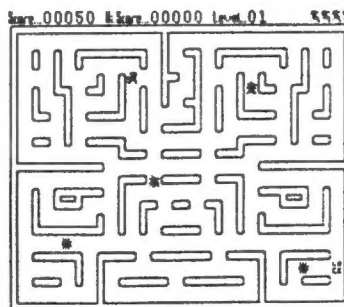
Next, with the main ROM in control, LOAD in one of the emulator tapes. Then, before switching to the emulator, type in and RUN Listing 5 or 6, depending on the emulator tape. This modifies the NMI routine as shown in Listing 7. (The Spectrum version is shown. The TS2068 version is the same except for a different CALL address.)

The CALL instruction runs the screen-copy routine in the ROM. As such, pressing the NMI switch will cause a copy of the screen to be sent to the TS2040 printer. But look at the program! I've modified the B register without first saving it somewhere, and if you trace through the COPY routine (OEAF in the Spectrum, 0A05 in the TS2068) you'll see that it uses DI and EI. I've broken my own rules.

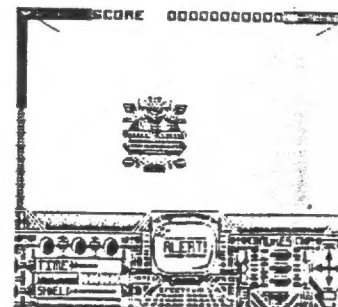
As a result, the programs you interrupt in this manner may act erratic or crash altogether, after the screen is printed out. Don't worry, the pictures I've included show that it still works, and next time we'll look at a more complex, but corrected version of the NMI screen copy. We've just run out of room, this time, but run the programs and see how bizarre things can get, if we don't write our interrupt handlers properly.

By the way, Doug Devey of the Triangle Sinclair User Group will be selling a version of his EMU emulator that contains a NMI SAVE routine I've written, as well as a version of my 64 column BASIC that will run under a Spectrum emulator. The NMI SAVE, along with the NMI switch we've been using, will stop a Spectrum program, and SAVE a "snapshot" of it to tape. When the tape is reloaded, the program will continue running at the point the "snapshot" was taken. The NMI SAVE is too long to include in this article, so I've given Doug the rights to duplicate and distribute it. Write to him for details.

As always, you can call me with questions, (607)785-7007, before 9:30pm Eastern time, or write me, Wes Brzozowski, 337 Janice St. Endicott, NY 13760. Please enclose a stamped, self addressed envelop for a reply.



CRAZYBUGS



GLASS

LISTING 1

```

10 REM RUN this program when
  the TS2068 ROM is in
  control. It will SAVE
  the "TS2068 Emulator"
  program to tape.
20 CLEAR 32767: FOR j=0 TO 163
83: POKE j+32768,PEEK j: NEXT j
30 SAVE "EMUL-2068" LINE 60
40 SAVE "emul-2068"CODE 32768,
16384
50 STOP
60 CLEAR 32767: LOAD ""CODE 32
768
70 OUT 244,192: RESTORE
80 FOR j=23296 TO 23307
90 READ k: POKE j,k
100 NEXT j
110 DATA 1,0,64,17,0,192,33,0,1
28,237,176,201
120 RANDOMIZE USR 23296: OUT 24
4,0
130 PAUSE 0: RANDOMIZE USR 0
  
```

LISTING 2

```

10 CLEAR 49151
20 OUT 244,192
30 POKE 49152+109,40
40 OUT 244,0
  
```

LISTING 3

```

0066 F5      PUSH AF
0067 E5      PUSH HL
0068 2A805C  LD HL, (#5080)
0069 7C      LD A,H
006C B5      OR L
006D 2001  JR NZ,#0070
006F E9      JP (HL)
0070 E1      POP HL
0071 F1      POP AF
0072 ED45  RETN
  
```

LISTING 4

```

10 REM RUN this program when a
  SPECTRUM EMULATOR is in
  control. It will SAVE
  the "SPECTRUM EMULATOR"
  program to tape.
30 SAVE "EMUL-SPECT" LINE 60
40 SAVE "emul-SPECT"CODE 0,163
84
50 STOP
60 CLEAR 32767: LOAD ""CODE 32
768
70 OUT 244,192: RESTORE
80 FOR j=23296 TO 23307
90 READ k: POKE j,k
100 NEXT j
110 DATA 1,0,64,17,0,192,33,0,1
28,237,176,201
120 RANDOMIZE USR 23296
130 FOR j=49152 TO 49159
140 READ k: POKE j,k
150 NEXT j
160 DATA 243,175,17,255,255,195
,203,17
170 OUT 244,0
180 PAUSE 0: RANDOMIZE USR 0
  
```

LISTING 5

```

10 REM NMI Screen COPY-TS2068
20 CLEAR 49151: OUT 244,192
30 POKE 49152+104,6
31 POKE 49152+105,192
32 POKE 49152+106,205
33 POKE 49152+107,5
34 POKE 49152+108,10
35 POKE 49152+109,24
40 OUT 244,0
  
```

LISTING 6

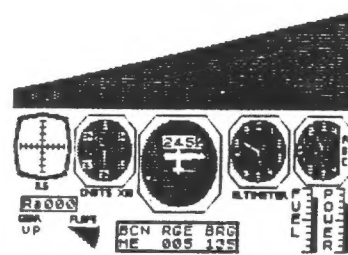
```

10 REM NMI ScreenCOPY-Spectrum
20 CLEAR 49151: OUT 244,192
30 POKE 49152+104,6
31 POKE 49152+105,192
32 POKE 49152+106,205
33 POKE 49152+107,175
34 POKE 49152+108,14
35 POKE 49152+109,24
40 OUT 244,0
  
```

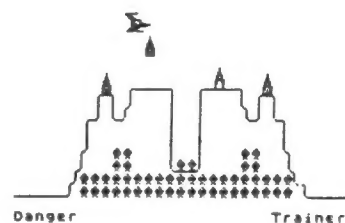
LISTING 7

```

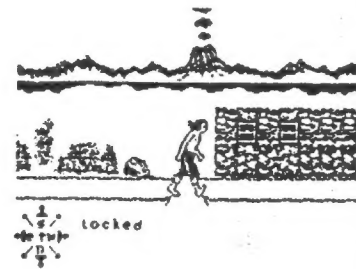
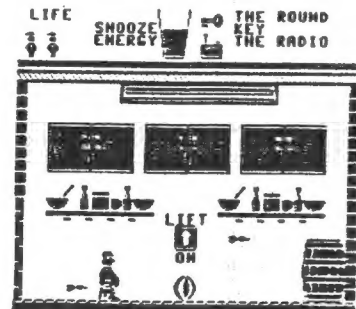
0066 F5      PUSH AF
0067 E5      PUSH HL
0068 06C0  LD B,#C0
006A CDAF0E  CALL #0EAF
006D 1801  JR #0070
006F E9      JP (HL)
0070 E1      POP HL
0071 F1      POP AF
0072 ED45  RETN
  
```



Stage 5. Player -1- Score



PENETRATOR-About to buy the farm



TIR NA NOG

DISC DRIVE USER'S SURVEY

IN ORDER TO DO AN ARTICLE ON DISC DRIVES I NEED SOME DATA FROM YOU- THE OWNERS AND USERS- YOUR VALUABLE TIME AND COMMENTS WOULD BE OF GREAT HELP TO THOSE OF US WHO HAVE NOT YET TAKEN THE DISC PLUNGE - YOUR CHANCE TO TRUMPET THE GREAT OR BLAST THE NOT SO GREAT - LOWER LEFT OF PAGE IS FURTHER DETAILS. THANK YOU

NAME OF SYSTEM _____ DRIVES _____ DISC SIZE _____

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	GREAT	GOOD	SO-SO	NOT SO
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HOW DO YOU RATE DOCUMENTATION?	---	---	---	---
HOW DO YOU RATE SELLER SUPPORT?	---	---	---	---
HOW DO YOU RATE COST VS. USES?	---	---	---	---

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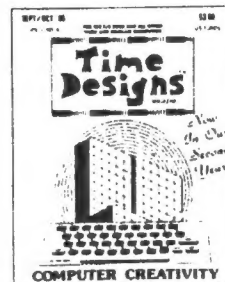
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SAVE SAVE SAVE SAVE SAVE SAVE

IF YOU USE MSCRIPT TAKE MY ADVISE AND MAKE SAVES OFTEN AND WHEN IN DOUBT SAVE AGAIN. I USE MSCRIPT ALMOST DAILY AND HAVE HAD AT LEAST ONE CRASH A NIGHT CAUSED BY HITTING A WRONG KEY- USUALLY WHILE OPERATING THE PRINTER. IT IS A VERY EASY PROGRAM TO LOCK UP - THANK GOD I DID MAKE SAVES - OTHERWISE I WOULD NOT BE ABLE TO GET A NEWSLETTER ANYWHERE NEAR READY.

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